

Notice of Allowability

Application No.

10/663,679

Examiner

Mark Kopec

Applicant(s)

URANO, KOUICHI

Art Unit

1751

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to application filed 9/17/03.
2. ☒ The allowed claim(s) is/are 1-21.
3. ☒ The drawings filed on 17 September 2003 are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.


Mark Kopec
Primary Examiner

The following is an examiner's statement of reasons for allowance:

Mears (6,787,068) discloses a composition comprising finely divided particles of (a) an electrically-conductive material; (b) one or more inorganic binders; and (c) tin, wherein components (a), (b) and (c) are in a liquid vehicle, said composition being suitable for use in the manufacture of an electrically-conductive pattern on a substrate (Abstract). The preferred metal for the electrically-conductive component (a) of the conductor composition of the present invention is silver. Silver particles larger than about 1.0 μm impart greater coloring to the composition. It is preferred that the compositions of the invention contain at least 50% weight silver particles larger than 1.0 μm . The silver will ordinarily be of high purity, typically greater than 99% pure. However, less pure materials can be used depending on the electrical requirements of the conductive layer or pattern. In an embodiment of the invention, component (a) comprises a mixture of silver and nickel and/or suitable derivatives. A preferred nickel derivative suitable for use in this embodiment of the invention is nickel boride (Ni_3B). Typically, the Ag:Ni ratio will be about 1:1 to about 25:1, preferably at least about 1.5:1 and more preferably about 1.5:1 to about 3:1. Component

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(c) in the compositions of the present invention comprises tin in one or more of the following forms: (i) metallic tin particles; (ii) particles of a tin-containing alloy; (iii) a derivative of tin which is substantially converted to the metal under the action of heat (Col 4, line 65 to Col 5, line 20).

Hicks et al (4,434,084) discloses a cathodic coating for tantalum capacitors containing (a) a mixture of finely divided copper and tin or tin alloy particles dispersed in a solution of (b) organic acid flux, and (c) organic amine in (d) inert organic medium (Abstract). The invention is also applicable, however, to tin-containing solder alloy powders such as tin/lead, tin/bismuth, and tin/silver in finely divided form. Preferred powders are those containing large amounts of tin such as eutectic compositions 62% tin, 36% lead, 2% silver; 63% tin, 37% lead. Higher tin-containing powders such as 96% tin, 4% silver are also useful (Col 2, lines 60-65).

Fukuoka et al (4,894,184) discloses conductive paste prepared by dispersing, in an organic vehicle, a base material comprising 50 to 95% by weight of a powder of at least one conductive material selected from the group consisting of a copper alloy, a copper oxide and a copper alloy oxide and 5 to 50% by weight of a glass powder having a softening point of 300°

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to 600° C (Abstract). When an oxide of copper or a copper alloy is used as a conductive material, one having an oxidation ratio of 0.1 to 100% is preferable. The oxidation ratio represents an oxygen content in percentage by weight when Cu.sub.2 O is 100% and Cu is 0%. As a copper alloy containing copper as a major component, one selected from the group consisting of Cu-Ag, Cu-Sn, and Cu-Ag-Sn, and having an Ag content of 0.05 to 50% by weight and an Sn content of 0.01 to 10% by weight, is preferable (Col 4, lines 1-7).

The prior art does not disclose or suggest the instant claimed resistive compositions/devices/methods requiring the claimed mixture of specific conductive metal powder, glass powder, copper-oxide and vehicle.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mark Kopec whose telephone number is (571) 272-1319. The examiner

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can normally be reached on Monday - Friday from 9:30 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dr. Yogendra Gupta can be reached on (571) 272-1316. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Mark Kopec
Primary Examiner
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MK
February 28, 2005